AOOSTAR GEM12+

AOOSTAR GEM12+ AMD R7 PRO 8845HS Mini PC User Manual

Model: GEM12+

1. INTRODUCTION

The AOOSTAR GEM12+ is a high-performance mini PC featuring the AMD Ryzen 7 PRO 8845HS processor. This manual provides essential information for setting up, operating, and maintaining your device to ensure optimal performance and longevity.

Figure 1: AOOSTAR GEM12+ Mini PC

2. PACKAGE CONTENTS

Verify that all items are present in the package:

- 1 x AOOSTAR GEM12+ 8845HS Mini PC
- 1 x VESA mount
- 1 x Mounting screw set
- 1 x Power supply
- 1 x HD cable
- 1 x SSD Cooling Pad

3. INITIAL SETUP

This model is shipped without RAM, SSD, or an operating system. Follow these steps for initial setup:

3.1 Installing RAM and SSD

1. **Prepare the Mini PC:** Ensure the mini PC is powered off and disconnected from all power sources.

2. **Open the Chassis:** Carefully open the mini PC chassis to access the internal components. Refer to the product's quick start guide or manufacturer's website for specific instructions on opening the case.

3. **Install DDR5 SO-DIMM RAM:** Locate the two DDR5 SO-DIMM slots. Align the RAM module notch with the slot key and insert the module firmly until the side clips snap into place. Repeat for the second module if installing dual channel RAM.

4. **Install M.2 SSD:** Locate the two M.2 2280 PCIe 3.0/4.0 slots. Insert the M.2 SSD into the slot at an angle, then gently push it down and secure it with the provided screw or retention clip. Apply the SSD cooling pad if included.

5. **Close the Chassis:** Carefully reassemble the mini PC chassis.
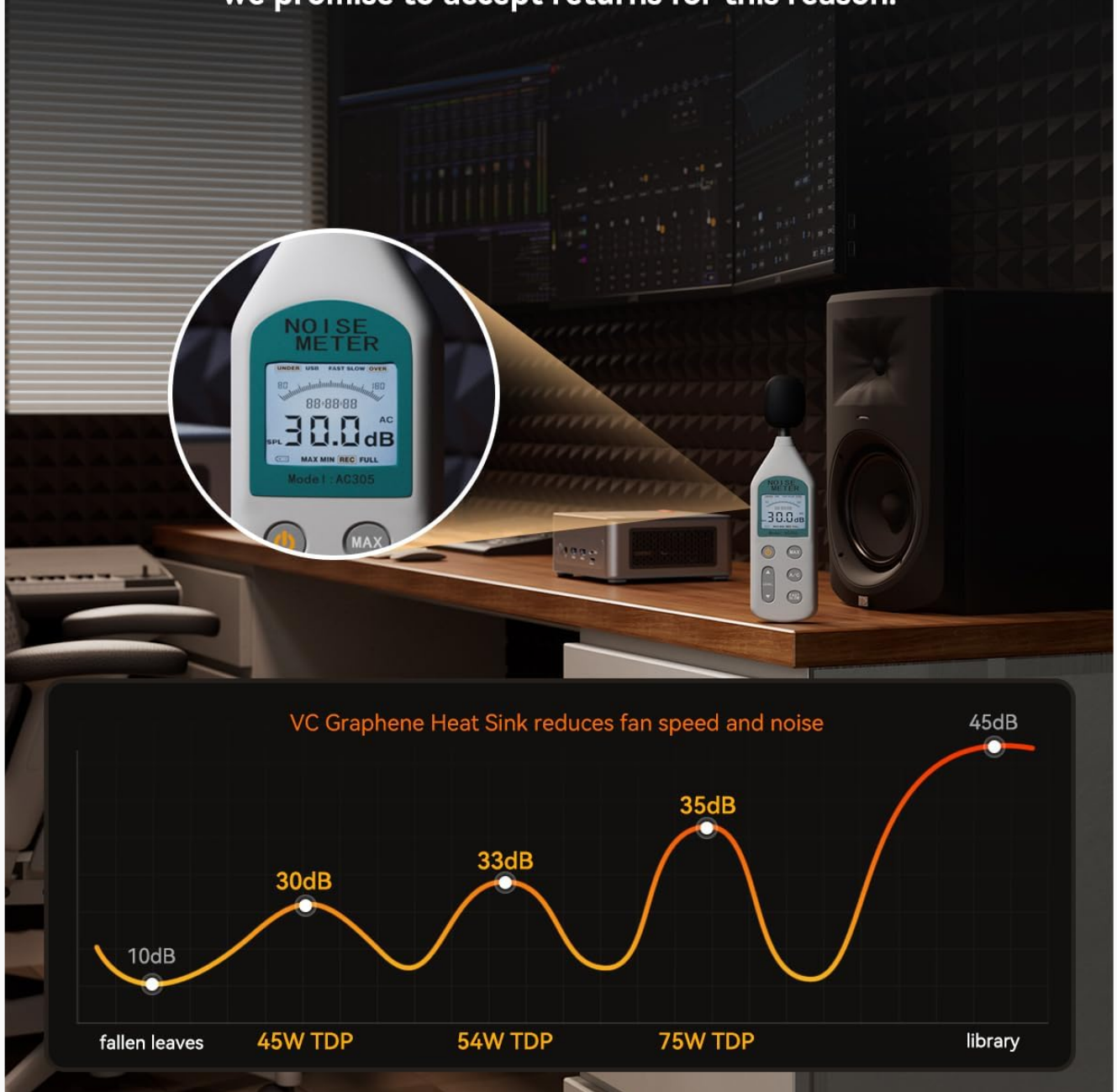
Figure 2: RAM Installation

Figure 3: M.2 SSD Installation

3.2 Connecting Peripherals

1. **Connect Display:** Connect your monitor(s) to the HD2.1 or DP1.4 ports. The mini PC supports up to four 4K displays.

2. **Connect Input Devices:** Connect your keyboard and mouse to the available USB ports (USB3.2 Gen2 or USB2.0).

3. **Network Connection:** For wired internet, connect an Ethernet cable to one of the 2.5G LAN ports. For wireless, ensure your WiFi 6 and Bluetooth 5.2 antennas are properly connected (if external).

4. **Power Connection:** Connect the power supply to the DC port on the rear of the mini PC, then plug the power supply into an electrical outlet.

Figure 4: Port Overview

3.3 First Boot and OS Installation

1. **Power On:** Press the power button on the front of the mini PC.

2. **Install Operating System:** Insert your preferred operating system installation media (USB drive) and follow the on-screen instructions to install the OS on your newly installed SSD.

3. **Driver Installation:** After OS installation, install all necessary drivers, which can typically be found on the AOOSTAR official website.

4. OPERATION

4.1 Front and Rear Interfaces

The AOOSTAR GEM12+ offers a variety of ports for connectivity:

- **Front Interface:** Power Switch, Audio Interface, 2x USB3.2 Gen2 ports, 1x OCULINK port, 2x USB4 ports.
- **Rear Interface:** 2x 2.5G LAN ports (INTEL I226V), 1x DC power port, 1x DP1.4 port, 1x HD2.1 port, 2x USB2.0 ports.

Wireless connectivity includes built-in WiFi 6 and Bluetooth 5.2.

Figure 5: Multi-Display Setup

4.2 Performance Modes

The mini PC's BIOS allows adjustment of power consumption and performance:

- **Silent Mode:** 45W-54W TDP (Thermal Design Power) for quiet operation.
- **Balanced Mode:** 54W-65W TDP for a balance of performance and noise.
- **Performance Mode:** 65W-70W TDP for maximum performance.

Figure 6: Performance Mode Selection

4.3 OCuLink Port Usage

The OCuLink port (64 Gbps) provides a high-bandwidth connection for external GPUs, offering minimal performance loss compared to Thunderbolt 4/USB4. This port operates on an independent channel, not occupying M.2 slots.

Note: The OCuLink port does not support hot-swapping. Ensure the mini PC is powered off before connecting or disconnecting an external GPU via OCuLink.

Figure 7: OCuLink Port for External GPU

5. MAINTENANCE

5.1 Cooling System

The GEM12+ features a dual cooling system with a CPU fan and a vapor chamber, complemented by a VC Graphene Heat Sink. This design ensures efficient heat dissipation, maintaining stable temperatures even under prolonged high load and extending the device's lifespan.

Figure 8: Dual Cooling System

5.2 General Care

- Keep the mini PC in a well-ventilated area to prevent overheating.
- Regularly clean dust from the vents using compressed air.
- Avoid exposing the device to extreme temperatures or humidity.

6. TROUBLESHOOTING

If you encounter issues with your AOOSTAR GEM12+ Mini PC, refer to the following common solutions:

- **System Does Not Boot:** If the system fails to boot on first power-up, ensure that the RAM modules are correctly seated in their slots. Power off the device, disconnect power, and re-seat the memory modules firmly.

- **External GPU (eGPU) Boot Issues:** If the system does not boot after switching between integrated and external GPUs via OCuLink, perform a power cycle. Power off the mini PC completely, then power it back on.

- **External GPU (eGPU) Error 43 in Device Manager:** If you experience 'Error 43' with an external GPU, power off the mini PC, unplug it from the power source, open the chassis, and carefully unplug the internal BIOS battery for approximately 5 minutes. Reconnect the BIOS battery, close the chassis, and power on the device. This can reset the BIOS and resolve certain hardware detection issues.

- **BIOS Update Issues:** If you encounter difficulties following BIOS update instructions from the manufacturer's website, it is recommended to contact AOOSTAR customer support for assistance.

- **Screen Software Alerted as Virus:** If legitimate screen control software is flagged by antivirus programs, verify its source. If it is from the official manufacturer, you may need to add it to your antivirus program's exemption list.
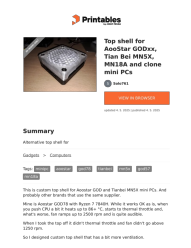
7. SPECIFICATIONS

Feature	Detail
Processor	AMD Ryzen 7 PRO 8845HS (8 Cores/16 Threads, up to 5.1 GHz)
Graphics	AMD Radeon 780M (Integrated, 2700 MHz)
RAM	DDR5 5600MHz SO-DIMM (2 slots, up to 128GB total)
Storage	2x M.2 2280 PCIe 3.0/4.0 slots (Max. 8TB)
Video Output	1x HD2.1, 1x DP1.4, 2x USB4 (supports 4x 4K displays)
Networking	2x 2.5G LAN (INTEL I226V), WiFi 6, Bluetooth 5.2
USB Ports	2x USB4, 2x USB3.2 Gen2, 2x USB2.0
Other Ports	1x OCULINK (64 Gbps), 1x Audio Interface, 1x DC Power
Operating System	None (User-installable)
Dimensions	Approx. 6.81 x 6.81 x 5.08 inches
Weight	Approx. 3.21 pounds

8. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the official AOOSTAR website or contact AOOSTAR customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.

Related Documents - GEM12+

	[AOOSTAR GEM12 Max Mini PC User Manual & Specifications](#) Comprehensive user manual for the AOOSTAR GEM12 Max Mini PC (R7 8845HS). This guide provides detailed information on unpacking, product interfaces, operating environment, important precautions, troubleshooting slow boot issues, and warranty terms.
	[AOOSTAR MN78 Mini PC User Manual](#) Comprehensive user manual for the AOOSTAR MN78 Mini PC, covering setup, operation, environment, installation, and warranty information.
	[Custom 3D Printable Top Shell for AooStar and Tian Bei Mini PCs](#) Enhance the cooling performance of your AooStar GODxx, Tian Bei MN5X, MN18A, and clone mini PCs with this custom 3D printable top shell. Designed to improve ventilation and reduce thermal throttling, it offers various height and cutout options for optimal airflow and quieter operation.
	[Aoostar T8 Mini-PC im Test: Kompakter Rechner mit Intel N100](#) Umfassender Testbericht zum Aoostar T8 Mini-PC. Erfahren Sie mehr über die kompakte Bauweise, die Ausstattung und die Leistung des Intel N100 Prozessors.
	[AOOSTAR GEM12 Max Mini PC User Manual & Specifications](#) Comprehensive user manual for the AOOSTAR GEM12 Max Mini PC (R7 8845HS). This guide provides detailed information on unpacking, product interfaces, operating environment, important precautions, troubleshooting slow boot issues, and warranty terms.
	[NeurIPS 2024 + AMD Sweepstakes: Official Rules and Terms](#) Official rules and terms for the NeurIPS 2024 + AMD Sweepstakes sponsored by Advanced Micro Devices, Inc. Learn about eligibility, how to enter, prize details, and more.

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